S
Insect Control - Modoc
Badger Springs Cooperative Project

Alturas, California
March 15, 1932

R E P O R T

on

Beetle Control Operations

Season

1931 - 1932

Pickering Lumber Company

and

U. S. Forest Service

Cooperating

Foreman Ernest Burk
Pickering Lumber Company

Representative Alvin T Parker
U. S. Forest Service

The Western Pine Beetle, Dendroctonus brevicomis, has caused heavy losses to the large stands of pure Ponderosa Pine in the western portion of the Modoc National Forest during the past ten years. These losses have been of a fluctuating nature rather than a continual increase. The Badger Unit of this area was placed under timber sale contract to the Pickering Lumber Company in 1928, with the primary purpose in view of combating these destructive forest insects, either by logging, or by control operations. Within this area are some 70,000 acres of National Forest land and about 52,000 acres of Pickering Lumber Company land.

During 1931 this insect infestation was found to be on the increase again, and while it was not up to the 3% contract clause, which obligates the company to do control work, it was recommended by the U. S. Bureau of Entomology that control work be done. Thus, the Pickering Lumber Company and the U. S. Forest Service agreed to dothe work on a cooperative basis.

Of the 47½ sections in Townships 43 and 44 N., Ranges 8 and 9 E., which were in the primary area recommended for treatment, and the 16½ Sections in Townships 43 and 44 N., R. 7 E., under alternate plans of treatment, 30-3/4 sections were treated. Of this total 16-3/4 sections were in the south portion of T. 44 N., R. 8 E., 12 Sections in northern edge of T. 43 N., R. 8 E., and Sections 1 and 12 of T. 43 N., R. 7 E. The boundary of these areas can be definitely ascertained by an examination of the enclosed map.

Due to the uncertainty of weather conditions it was difficult to determine exactly the portion of this designated area that could be treated with the allotted $10,200.00. All roads had to be broken through two and three feet of snow with a caterpillar tractor and grader, which always involved a possible breakdown, with its resultant repair bill. Consequently there was $721.91 left unspent, but it was felt that it would be unwise to attempt to cover more area due to losing the effect of the money. By the time the needed roads would have been broken and the area spotted there would have been but little, if any, funds left for treating. The situation was made more difficult by the fact that the remaining government lands not treated were on the extreme northern edge of the area, and thus farthest from the camp.

The ownership of the treated area was divided between Government and Pickering Lumber Company lands as follows:

	Acres	Trees	Vol. Ft. B.M.
U. S. Forest Service	12,160	1,151	1,356,520
Pickering Lumber Company	7,520	781	988,430
Total -	19,680	1,932	2,344,950

History of Infestation Previous to Control:

From Mr. Keen's reports we find the losses due to the western pine beetle, Dendroctonus brevicomis, on the Badger Unit of the Modoc National Forest built up previous to control operations as follows:

Year	Average % of stand killed	Volume of Loss on Control Area
1925	1.50%	3,540 M.B.M.
1926	3.47	8,180 " " "
1927	10.95	25,850 " " "
1928	7.38	17,420 " " "

During the fall and winter of 1928 the first control work on the area was done. In the fall of 1929 control work was again done on a portion of the area.

Following are Mr. Keen's figures for the results of those two years:

Area Controlled in Fall and Winter 1928.

No. Trees killed	Volume killed	Percent of stand	
18,210	15,000 M.B.M.	7.20%	Before Control 1928
1,660	1,350 " " "	.65	After " 1929

Balance of Badger Unit

No. Trees killed	Volume killed	Percent of stand	
57,290	45,400 M.B.M.	7.40%	Before Control 1928
12,640	10,090 " " "	1.65	After " 1929

In 1930 the survey was made by Mr. Person and showed a loss of only .85% on the unit. Therefore no control work was recommended.

From a survey of the situation, during the period September 14-19, 1931, by representatives of the U. S. Bureau of Entomology, Pickering Lumber Company and U. S. Forest Service the losses were estimated to be 1.8%. It was considered that the infestation was at the beginning of another period of epidemic conditions, and that if further losses were to be avoided, control operations would be advisable during the fall and winter of 1931. Consequently the Pickering Lumber Company and U. S. Forest Service decided to do control work.

Basis of Cooperation:

As recorded in paragraph #3 of the insect control agreement we read as follows:

"The Pickering Lumber Company shall bear the entire cost of control work on lands owned by it, and one-half the cost of such work on National Forest land." Thus, there was $7,200.00 set up by Pickering and $3,000.00 set up by the Forest Service. Of these amounts $4,200.00 was available for treating Pickering lands, and $6,000.00 for government.

As provided in paragraph #6 of this agreement, "the unit cost of all work done shall be determined by dividing the total expenditure by the total number of M board feet contained in all trees treated on the entire job. Reimbursement to the company by the Forest Service shall be one-half of the amount secured by multiplying the number of M board feet of trees treated on National Forest land by the cost per M board feet as determined above."

Organization of Control Work:

When all the points involved in this agreement had been decided upon authority was immediately issued to begin the work. Accordingly, camp was organized at the Pickering Portable Mill and spotting was started December 2, 1931, and was completed February 17, 1932. Treating was started December 4 with a few crews and gradually built up to a maximum of eleven two-man crews by December 15. All work was then continued persistently, except for a few interruptions on account of snow, until treating was terminated February 29.

Mr. Ernest Buck of the Pickering Lumber Company was given charge of all control operations. Mr. W. V. Taylor of the Pickering Lumber Company was the accountant for the job. A Forest Service representative was also present, most of the time to assist in supervision and keep a check on fiscal matters. Dr. K. A. Salman of the U. S. Bureau of Entomology was present at the beginning of the job.

Except, for a short time at the start of the work when one new man had to be broken in, all the spotters and the compassman were experienced "bug-men".

Heavy snows came several times, which piled up too deep to travel through. Snow shoes were secured for the spotting crew, and skiis were made for all the treating crews. In this way it was possible to continue working, even in the maximum of 4 feet of snow that was encountered in some places. Except for a short time the snow depth was never under two feet.

The "spotters" were paid at the rate of $4.00 per day less $1.25 for board, and the "treaters" $3.00 per day less $1.25 per board.

Methods and Results of Work:

Three spotters and a compassman comprised the spotting crew. A regular ten-chain strip cruise method was used, each spotter covering a three and one-third chain strip. They made a 100% cruise of 320 acres each working day, and completed spotting 19,840 acres in two and one-half months with a total of 1936 trees. The trees were numbered serially, blazed on three sides, and a card in an envelope was tacked on each tree or group of trees. The compassman mapped the trees on a four-inch scale map, and later made copies on an eight-inch scale for use of the treating crews.

The bark-burning method of treating was used with two-man treating crews doing the work. The trees were felled, limbed, and the upper half of the logs peeled. The brush and bark was piled on and along the log and burned. Some difficulty in burning was encountered on account of the deep snow, which always had to be shoveled away from the logs. If it was not shoveled away, from each side of the log it was impossible to secure a satisfactory burn. Wherever it was possible an old snag was felled first, as a bed for the bug tree to fall across. This reduced the amount of snow shoveling considerably. Another important step in the burning process was the securing of pitch for setting the bark and limbs on fire. This is especially true during late winter treating, where everything is usually wet.

The supervision was handled on both the government and company lands by the camp forman. He visited all the treating crews daily, and always checked every tree treated to insure that efficient work was being done as well as to

show the men methods of improving their work. The forest representative often accompanied the camp forman on these trips and made trips of his own to satisfy himself that satisfactory work was being performed. Uniform work was done on both government and company lands. All persons who visited the project felt that a good job of treating was being done.

Account of Work Accomplished:

Number of trees spotted	No. trees treated	Volume B.M. treated	Acres treated
1,936	1,932	2,344,950	19,680

Average No. trees per section	Average Diam. per tree	Average logs per tree	Average Volume per tree
62.5	29.33	4.40	1,214

It is interesting to note that the average volume per tree treated this year is 1,214 bd. ft. as compared to 788 bd. ft. per tree treated in the 1929 project, or an increase of 54%.

Cost of Work:

Salaries & Wages (all workers)			Sub.& Supp. (Food only)	Transportation (Gas.,Oil)	Other Supplies (Equip.,Miscel.)	Total
Gross	Board	Net				
$9468.99	3181.35	6287.64	$2,222.61	$623.21	$344.63	$9478.09
Cost per man day		$2.866	$ .88-*	$ .284	$ .157	4.32

* Figured on a basis of 2,531 man day meals eaten.
Remainder figured on a basis of 2194 man days of labor.

Of the total cost of the project, $9,478.09, approximately 58% or $5,482.92 was spent on Government lands one half of which was paid by the U. S. Forest Service and one-half by Pickering. The remainder $3,995.17 was spent on Pickering lands all of which was paid by the company.

Labor and Cost Distribution:

	Gross	Board	Net	Man days	Net cost per man day
Supervision & Accounting (Salaries & Supplies)	$1,441.92	260.15	1,181.77	198	$5.97-
Spotting (Wages spotting crew only)	1,181.80	425.85	755.95	241	3.14-
Treating (Wages treating crews only)	5,258.24	2000.65	3,257.59	1364½	2.38-
Subsistence: (Salaries & Supplies)	2,900.28	222.60	2,677.68	180	14.88-

(7,593 meals were served at a cost of .382 per meal)

Labor and Cost Distribution cont.

	Gross	Board	Net	Man days	Net cost per man day
Transportation (Wages & Supplies)	1,104.33	135.65	968.68	106	$9.14-
Equipment (Rent, repairs, miscel. supplies, and saw-filers wages.)	736.36	123.05	613.31	94	6.52/
Non-effective Items (Camp sanitation, etc.)	36.51	13.40	23.11	10½	2.20
Totals			9478.09	2194	$4.32

Percent of non-effective cost to total cost - - - - - - - - - - - - - - - .24%

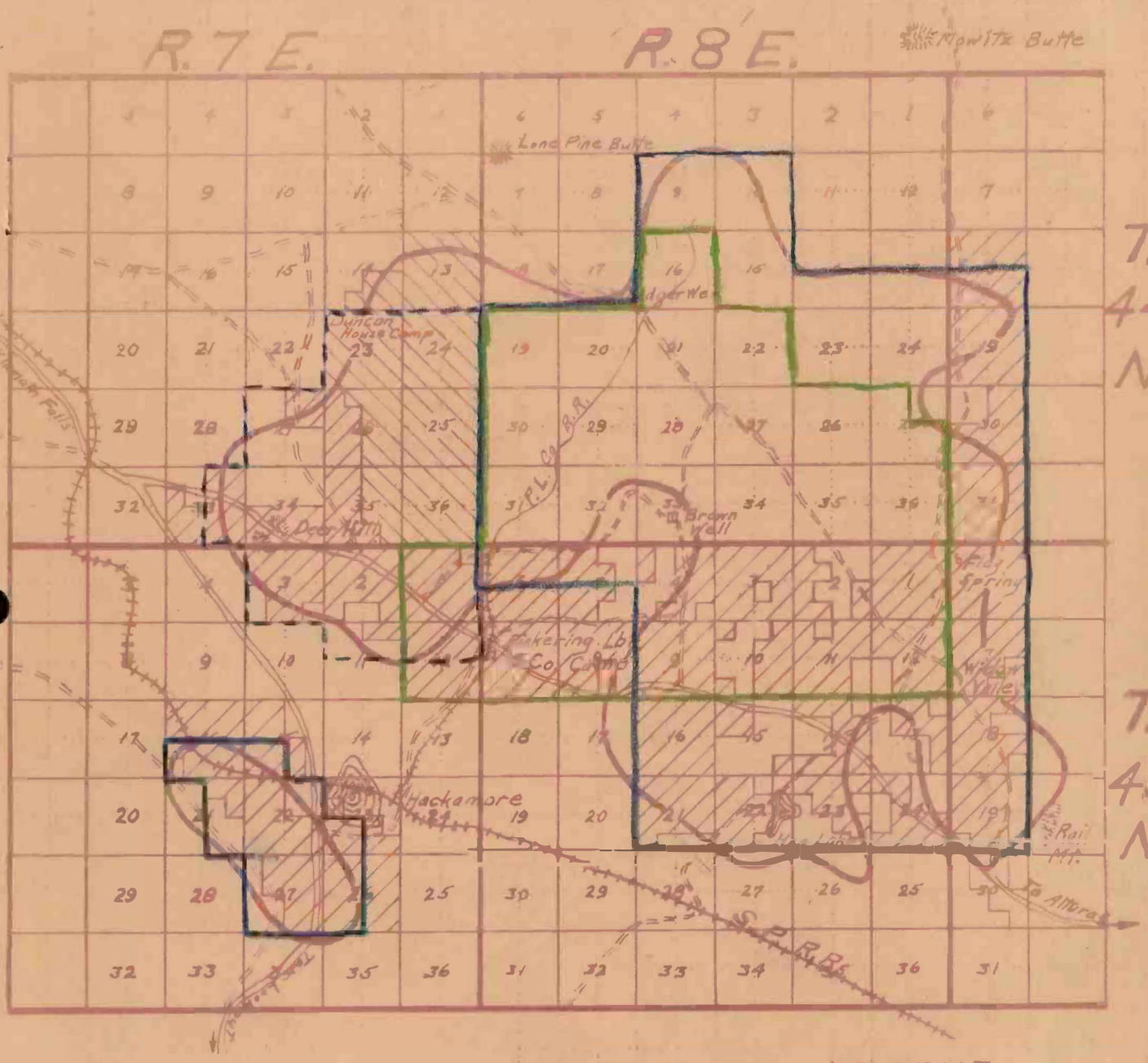
Average Costs:

Cost per tree spotted (labor only - - - - - - - - - - - - -	$ .391/
Cost " M bd. ft. spotted (labor only) - - - - - - - - - -	.322/
Cost per acre spotted (labor only) - - - - - - - - - - - -	.038/
Cost " Man day spotting (labor only) - - - - - - - - - -	$3.14-
Cost " tree treated -	4.9058/
Cost " M bd. ft. treated - - - - - - - - - - - - - - - - -	4.0419
Cost " Acre treated -	.4816
Cost " man day of total labor - - - - - - - - - - - - - -	4.32

In comparing costs this year with costs of former years, it must be remembered that the wages for common labor are now considerably less than the $5.00 daily wage formally paid. Then again, while bad weather conditions were encountered, the above mentioned 54% increase in volume per tree treated this year served to help reduce the cost per M bd. ft. treated. While there were three-man crews in the 1929 control work and two-man crews in this project it is somewhat difficult to determine which cost the more per M bd. ft. on account of the difference in weather conditions. In the former case the fires were easily started making fuel rustling a small item, but making it necessary for the third man to devote some time to making a fire line around the log and guarding the fire from spreading. For the 1931-1932 project burning was much more difficult, making considerable more work for two men, but no fire control work was necessary.

Attached is a map of the area involved:

Beetle Control-Modoc
Bear Spring Cooperative Project 43,44 N., R 7,8 E., MD



PICKERING SALE AREA
BEETLE CONTROL PROJECT
MODOC NATIONAL FOREST
SEASON
1931 – 1932

LEGEND

- Pickering Lumber Co. Land
- Red River " " "
- National Forest Land
- Boundary Heavy Beetle Infestation
- Area Recommended for Treatment
- Alternate Area " " "
- Area Treated

3-15-32 A.L. Parker

Ownership shown only within boundary of beetle infested area.